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(54) **Negative resist composition, process for forming resist patterns, and process for manufacturing electronic device**

(57) A negative resist composition is provided which comprises at least a constituent component which has a vinyl ether structure protected with an acetal in a molecule thereof. In the formation of negative resist patterns, an aqueous basic solution can be used without swelling.

A process is also provided for forming a resist pattern, which comprises the steps of: applying a negative resist composition comprising at least a constituent component which has a vinyl ether structure protected with an acetal in a molecule thereof, on a to-be-treated

substrate; selectively exposing the formed resist film to imaging radiation capable of provoking decomposition of a photo acid generator of the resist composition, and developing the exposed resist film with an aqueous basic solution.

A process is also provided for manufacturing an electronic device, which comprises the step of selectively removing an underlying to-be-treated substrate using a resist pattern, formed from the above-mentioned process, as a masking means to form a predetermined functional element layer.

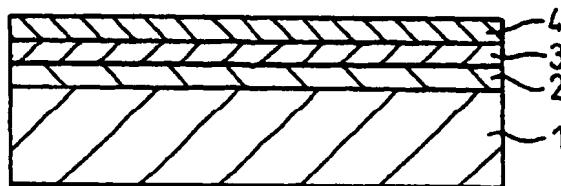
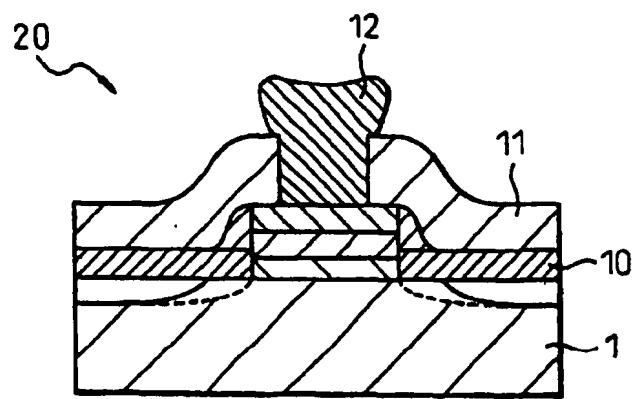


Fig.1A

Fig.1F





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EUROPEAN SEARCH REPORT

Application Number

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DOCUMENTS CONSIDERED TO BE RELEVANT					
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)		
D, X	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 02, 29 February 2000 (2000-02-29) -& JP 11 305436 A (FUJITSU LTD), 5 November 1999 (1999-11-05) * page 5 *	1, 2, 5	G03F7/075 G03F7/038 G03F7/004		
A	US 6 027 856 A (NOZAKI KOJI ET AL) 22 February 2000 (2000-02-22) * the whole document *	1-39			
A	US 5 916 995 A (KIM JI-HONG ET AL) 29 June 1999 (1999-06-29) * the whole document *	1-39			
TECHNICAL FIELDS SEARCHED (Int.Cl.7)					
G03F					
<p>The present search report has been drawn up for all claims</p>					
Place of search	Date of completion of the search	Examiner			
THE HAGUE	24 July 2003	Heywood, C			
CATEGORY OF CITED DOCUMENTS					
X : particularly relevant if taken alone	T : theory or principle underlying the invention				
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ON EUROPEAN PATENT APPLICATION NO.

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24-07-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
JP 11305436	A	05-11-1999	NONE			
US 6027856	A	22-02-2000	JP DE TW	11311860 A 19912047 A1 422942 B	09-11-1999 25-11-1999 21-02-2001	
US 5916995	A	29-06-1999	KR JP JP	219303 B1 2875239 B2 10182537 A	01-09-1999 31-03-1999 07-07-1998	